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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/551,051	04/18/2000	Arup K. Basak		2218

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EXAMINER
SHOSHO, CALLIE E

ART UNIT	PAPER NUMBER
1714	16

DATE MAILED: 11/22/2002

Please find below and/or attached an Office communication concerning this application or proceeding.

AS-16

Office Action Summary	Application No. 09/551,051	Applicant(s) BASAK ET AL.	
	Examiner Callie E. Shosho	Art Unit 1714	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *06 November 2002*.

2a)☐ This action is **FINAL**. 2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1-7 and 9-21* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *1-7 and 9-21* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☐ The drawing(s) filed on _____ is/are: a)☐ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

11)☐ The proposed drawing correction filed on _____ is: a)☐ approved b)☐ disapproved by the Examiner.

If approved, corrected drawings are required in reply to this Office action.

12)☐ The oath or declaration is objected to by the Examiner.

Priority under 35 U.S.C. §§ 119 and 120

13)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

14)☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application).

a)☐ The translation of the foreign language provisional application has been received.

15)☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121.

Attachment(s)

1)☒ Notice of References Cited (PTO-892)
2)☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3)☐ Information Disclosure Statement(s) (PTO-1449) Paper No(s) _____.
4)☐ Interview Summary (PTO-413) Paper No(s). _____.
5)☐ Notice of Informal Patent Application (PTO-152)
6)☐ Other: .

DETAILED ACTION

1. All outstanding rejections are overcome by applicants' amendment filed 11/6/02.

Upon updating the searches, a new reference came to the attention of the examiner, namely, Doi et al. (U.S. 6,378,999).

In light of the use of this new reference against the present claims, the finality of the previous office action is withdrawn and the following action is non-final.

Claim Rejections - 35 USC § 103

2. The text of those sections of Title 35, U.S. Code not included in this action can be found in a prior Office action.

3. Claims 1-7 and 9-21 are rejected under 35 U.S.C. 103(a) as being unpatentable over Doi et al. (U.S. 6,378,999) in view of Zhu (U.S. 5,889,083), and either Sano et al. (U.S. 5,324,349), or Kubota et al. (U.S. 6,323,370).

Doi et al. disclose ink jet ink comprising 0.5-20% pigment, 0.002-10% dispersant including those obtained from styrene and acrylic acid, 1-10% solvent including ethanol, 0.01-3% surfactant, biocide, humectant (diethylene glycol, polypropylene glycol, polyethylene glycol), and water. The ink has conductivity of 500-7400 μS/cm, viscosity of 1.5-10 mPa s, pH of 4.5-9.5, and particle size of 15-200 nm (col.2, lines 25-26 and 44-46, col.4, lines 23-25 and 27-50, col.5, lines 46-56, col.6, lines 10-17, 24, 30-31, and 46, col.7, lines 7-8, col.8, lines 34-37, col.9, lines 40-43 and 64-65, col.10, lines 14-20, 24-27, 34-35, and 52-60, col.12, lines 4-5, 18-19, and 23-25, col.14, lines 25-26, and col.16, lines 42-43). Although there is no disclosure of the

surface tension of the ink, given that Doi et al. disclose ink comprising identical ingredients as presently claimed, it is clear that the ink would intrinsically possess surface tension as presently claimed.

While there is no disclosure that the dispersant is solubilized with ammonium hydroxide, it is noted that col.6, lines 10-24 of Doi et al. disclose that the dispersant is a copolymer obtained from hydrophilic monomer and hydrophobic monomer or salt thereof wherein the salts include onium salts of ammonium ion. Given that in the present invention, the acid portion of the dispersant is solubilized with ammonium hydroxide in order to form a salt, it is clear that the disclosure of Doi et al. that the dispersant is in the form of a salt is equivalent to applicants' disclosure that the dispersant is solubilized with ammonium hydroxide. That is, both the reference and the present invention produce the same end result, namely, dispersant in the form of a salt. Additionally, although there is no disclosure in Doi et al. that the ammonia volatilizes upon heating, given that Doi et al. is drawn to ink jet inks which are heated upon printing, it therefore would have been obvious to one of ordinary skill in the art to infer that the ammonia is intrinsically volatilized upon heating.

Further, it is noted that Doi et al. disclose use of surfactant but not defoamer as presently claimed. However, the surfactants disclosed by Doi et al. such as acetylene glycol and silicone based surfactants are well known, as evidenced by Zhu (col.10, lines 11-44), as defoamers.

The difference between Doi et al. and the present claimed invention is the requirement in the claims of (a) amount of acrylic resin emulsion in ink composition and (b) particle size of ink.

With respect to difference (a), on the one hand, given that Doi et al. disclose that the acrylic polymer emulsion is used to control ink properties, it therefore would have been obvious

to one of ordinary skill in the art, absent evidence to the contrary, to choose amount of emulsion, including that presently claimed, in order to produce ink with desired properties, and thereby arrive at the claimed invention.

On the other hand, Sano et al., which is drawn to ink jet inks, disclose the use of 1-25% acrylic resin emulsion that comprises, for instance, 45-50% resin. Sano et al. disclose that if the amount of resin emulsion utilized is too large, the resulting ink cannot produce an image with high optical density and tends to have excessively high viscosity while if the amount of resin emulsion is too small, the effects of the emulsion cannot be expected (col.4, lines 12-16, col.5, lines 26-34, col.7, line 47, and col.8, line 32).

Alternatively, Kubota et al., which is drawn to ink jet inks, disclose the use of 1-25% acrylic resin emulsion which comprises, for instance, 50% resin, in order to increase scratch resistance of print (col. 6, lines 17-20 and 26, col.7, lines 15-16, and col.9, line 65).

In light of the motivation for using specific amount of acrylic resin emulsion disclosed by Sano et al. or Kubota et al. as described above, it therefore would have been obvious to one of ordinary skill in the art to use this amount of acrylic emulsion in the ink of Doi et al. in order to produce ink with suitable optical density and viscosity or alternatively, good scratch resistance, and thereby arrive at the claimed invention.

With respect to difference (b), Doi et al. disclose that the number average particle size of the ink is 15-200 nm while the volume average particle size of the ink is 30-250 nm both of which appear to fall outside the scope of present claims 15 and 21 which require particle size of 280-300 nm. However, it is noted that Doi et al. disclose average particle size not particle size as presently claimed. Given that it is average particle size, it would have been within the skill level

of one of ordinary skill in the art to recognize that the ink also includes particles which would fall above and below this average value including those with particle size of 280-300 nm as presently claimed, and thus, one of ordinary skill in the art would have arrived at the claimed invention.

4. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Callie E. Shosho whose telephone number is 703-305-0208. The examiner can normally be reached on Monday-Friday (6:30-4:00) Alternate Fridays Off.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Vasu Jagannathan can be reached on 703-306-2777. The fax phone numbers for the organization where this application or proceeding is assigned are 703-872-9310 for regular communications and 703-872-9311 for After Final communications.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is 703-308-0661.

Callie E. Shosho
Examiner
Art Unit 1714

CS
November 19, 2002